AMENDMENTS TO THE CLAIMS:

The following claims are now pending in this application:

1. (currently amended) Automatic peritoneal dialysis sampling system comprising a peritoneal dialysis system adapted to automatically sample at specific time intervals volumic fluid fractions of a dialysate contained in a peritoneum of a patient in order to evaluate peritoneal membrane characteristics and/or improve peritoneal dialysis for a given patient,

wherein said peritoneal dialysis sampling system comprises:

a series of sampling containers,

pumping means, and

a series of valves adapted to direct a certain quantity of each fluid fraction sample to a specific sampling container in the series of sampling containers.

2. (original) Peritoneal dialysis system comprising an automatic peritoneal dialysis sampling system according to claim 1, a supplying line and supplying means for supplying dialysis fluid to a peritoneal cavity, a draining line, draining means for draining the fluid from said peritoneal cavity, connecting means for allowing a connection to a Y-site on the draining line which is situated between the patient peritoneum and the draining means of the peritoneal dialysis system.

3. (currently amended) Peritoneal dialysis system according to claim 2 comprising means for defining the specific time intervals for sampling volumic fluid fractions in relation with the peritoneal dialysis program sequences,

4. (previously presented) Peritoneal dialysis system according to claim 2 comprising means for allowing the use of different peritoneal dialysis liquids and/or different concentrations for each exchange cycle.

5. (previously presented) Peritoneal dialysis system according to claim 2 comprising means for allowing the automatic sampling during the dwell time of the peritoneal dialysis cycle and/or during the drain cycle.

6. (previously presented) Peritoneal dialysis system according to claim 2 wherein said valves are of electromagnetic type.

7. (previously presented) Peritoneal dialysis system according to claim 2 wherein said pumping means is of a peristaltic type.

8. (previously presented) Peritoneal dialysis system according to claim 2 comprising connecting means for connecting it to the draining line between the draining means and a waste collector in order to collect samples of specific drain cycles.

9. (previously presented) Peritoneal dialysis system according to claim 2 furthermore comprising means for eliminating a volume of liquid between two samplings at least equivalent to the dead volume contained between the patient and the sampling level.

10. (previously presented) Peritoneal dialysis system according to claim 2 furthermore comprising an automatic peritoneal dialysis exchange system, both automatic peritoneal dialysis sampling system and automatic peritoneal dialysis exchange system adapted to be connected to the patient peritoneum and comprising means for exchanging information together in order for the automatic peritoneal dialysis sampling system to determine the appropriate timing for each sampling on the basis of the dialysis exchange cycles of the automatic peritoneal dialysis exchange system.

11. (previously presented) Peritoneal dialysis system according to claim 10 wherein both automatic peritoneal dialysis sampling system and automatic peritoneal dialysis exchange system are adapted to be synchronized between each other.

12. (previously presented) Peritoneal dialysis system according to claim 2 wherein it comprises a memory key which contains all the necessary data to program the functioning of said automatic peritoneal dialysis sampling system and to store the sampling information.

13. (currently amended) Peritoneal dialysis system according to claim 2 wherein the sampling containers consist of soft pouches.

14. (currently amended) Peritoneal dialysis system according to claim 2 wherein the sampling containers contain a vacuum in order to draw the liquid automatically when in open connection with the drawing line.

15. (previously presented) Peritoneal dialysis system according to claim 2 furthermore comprising means for sequentially collecting sample volumes in a tubing, each sample being separated from the previous one by an air bubble inserted by the automatic peritoneal sampling system in-between each sample.

16. (previously presented) Peritoneal dialysis system according to claim 2 wherein said sampling containers are enclosed inside a cooling box which comprises cooling means to maintain the samples in optimal condition for storage until analysis.

17. (previously presented) Peritoneal dialysis system according to claim 2 comprising analyzing means for directly analyzing of at least one characteristic of the sample in-line, such as by spectroscopy, fluorometry or by use of chemical or electro-chemical means.

18. (previously presented) Peritoneal dialysis system according to claim 17 wherein said analyzing means allows the measurement of at least one of the following constituents or characteristics: glucose, urea, creatinine, Sodium, Chloride, albumine, proteins, osmolarity or ph.

19. (previously presented) Peritoneal dialysis system according to claim 17 comprising means which use the result of the in-line analysis to optimize the next peritoneal dialysis exchange cycle or sampling intervals in order to improve the membrane characteristics evaluation and/or improve the peritoneal dialysis for a specific patient.

20. (previously presented) Peritoneal dialysis system according to claim 19 comprising means for defining the specific time intervals for sampling volumic fractions in relation with the peritoneal dialysis program sequences.

21. (previously presented) Peritoneal dialysis system according to claim 2 comprising means for using different peritoneal dialysis liquids and/or different concentrations for each exchange cycle, whether it is a tidal exchange or a full exchange cycle.

22. (previously presented) Peritoneal dialysis system according to claim 2 comprising means for allowing the automatic sampling to occur during the dwell time of the peritoneal dialysis cycle and/or during the drain cycle in order to improve the evaluation of the peritoneal membrane characteristics and/or improve the peritoneal dialysis for a specific patient.

23. (previously presented) Peritoneal dialysis system according to claim 2 comprising means for eliminating a volume of liquid at least equivalent to the dead volume contained between the patient and the sampling level between two samplings.

24. (previously presented) Peritoneal dialysis system according to claim 2 comprising means for sequentially collecting the sampling volumes in a tubing and for separating each sample from the previous one by an air bubble inserted by the automatic peritoneal sampling system in-between each sample.